

## ABSTRACT

An objective of the invention, focusing on these issues involved in the use of a small, hobby-type, unmanned helicopter, is to develop an autonomous control system comprising autonomous control systems for a small unmanned helicopter, to be mounted on said small unmanned helicopter; a servo pulse mixing/switching unit; a radio-controlled pulse generator; and autonomous control algorithms that are appropriate for the autonomous control of the aforementioned small unmanned helicopter, thereby providing an autonomous control system that provides autonomous control on the helicopter toward target values.

The autonomous control system for a small unmanned helicopter of the present invention comprises:

Sensors that detect the current position, the attitude angle, the altitude relative to the ground, and the absolute azimuth of the nose of the aforementioned small unmanned helicopter;

A primary computational unit that calculates optimal control reference values for driving the servo motors that move five rudders on the helicopter from the target position or velocity values that are set by the ground station and the aforementioned current position and attitude angle of the small unmanned helicopter that are detected by the aforementioned sensors;

An autonomous control system equipped with a secondary computational unit that converts the data collected by said sensors and the computational results as numeric values that are output by said primary computational unit into pulse signals that can be accepted by the servo motors,

Such that these components are assembled into a small frame box, thereby achieving both size and weight reductions.